**BIOLOGY - PAPER 1**

**ARISE AND SHINE TRIAL 1 EXAMS**

**MARCH/APRIL - 2020**

**MARKING SCHEME**

1. Regulate the amount of light entering the microscope; (1mark)
2. (a) - Formation of cilia and flagella;
* Formation of spindle fibres; (mark any one) (1mark)

(b) Golgi bodies;

* + - Production of lysosomes;
		- Processing of secretions and transportation of packaged substances;
		- Transportation of cell secretions;
		- Transportation of glycoproteins; (mark any one) (1mark)
1. i) 10o C - low temperatures inactivates enzymes and protoplasm; (1mark)

ii) 50oC - high temperatures denature enzymes since they are protein in nature; and protein are destroyed by temperature above 40oC; (2 marks)

1. Cell sap of strip was hypotonic to the salt solution; hence the cell lost water to the surrounding by osmosis; the cells of the cortex lost water faster than the cells of the epidermis; hence the cortex shrunk faster than the epidermis and the stems curved inwards; (max 3 marks)
2. i) Glucose; rej starch /carbohydrates; penalize if the light stage products are mentioned.

ii) Chlorophyll traps light for photolysis /break water to H+ ions and oxygen gas;

1. The genus name starts with a capital letter while the species name starts with small letter; the two are typed in italics /underlined separately; (2 marks)
2. a) more urine will be produced /diuresis;

b) Lack of antidiuretic hormone /vasopressin therefore less water is absorbed. (2marks)

1. a) X- guard cell;

 W- Stoma; rej stomata

b) Have chloroplast that helps in the process of photosynthesis

* Have thin outer wall and thick inner wall to enhance bulging during opening of stomata.
1. A baby has a large surface are to volume ratio than an adult; hence loses more energy per unit weight faster than the adult ; Rej fast
2. i) Fats /lipids; acc oils

ii) Release large amounts for energy per molecule on oxidation; produces a lot of water on oxidation; (use of other metabolic activities)

1. - Stomata
* Lenticels
* Pneumatophores
* Cuticle (any two, 2 marks)
1. - Have thin film of moisture to dissolve gases for efficient diffusion
* Have a thin epithelium for faster diffusion of gases;
* Have a large surface area for maximum gaseous exchange
* Have a network of blood capillaries for transportation of different gases; (any three, 3marks)

b) Red blood cells; (1mark)

1. Endosperm material was being oxidized; hydrolyzed/converted into new materials for growth /food used for growth. (2marks)
2. a) Reduce competition where the larvae and the adult feed on totally different food types; enhance chances for the survival of the species during harsh environmental conditions like in pupal stage; (any one, 1mark)
3. Biosphere – part of the earth and atmosphere occupied by living organisms

Population – total number of organisms of the same species in a habitat.

Syncology – study of one species of an organism in a habitat.

Carrying capacity – total number of organisms that can be accommodated comfortably in a habitat.

1. a) convergent evolution

b) Analogous structure

c) Coccyx; appendix

1. a) Presence of more than two sets of chromosomes in a cell. (1mark)

b) - Albinism

* Haemophilia
* Colour blindness
* Sickle cell anemia (any three, 3 marks)
1. bring about mixing of genetic material leading to hybrid vigour / resistance of diseases; lead to genetic variation/new strains

1. a) Food web

b) Primary producers/ producer;

c) The sun/sunlight;

1. - Collenchyma
* Sclerenchyma
* Xylem
* Tracheids (any three)
1. a) Resolving power in the ability to distinguish two close pants as a separate entities (1mark)

b) Diameter of field of view - 3mm

No of cells -20 cells

1mm = 1000um

3mm -3000um

Size of 1 cell = 3000

 20

 =15um

1. a) Messenger ribonucleic acid (M-RNA) (reject RNA alone ) (1mark)

b) Thymine has been replaced by uracil in the strands ;presence of uracil (1mark)

1. a) - Have biconcave disc shape which increases the S.A for exchange of gases by diffusion
* Have haemoglobin which has high affinity for oxygen ;(hence faster transportation of oxygen)
* Lack nucleus to provide more room for hemoglobin.
* Have thin plasma membrane that allows faster /rapid diffusion of gases
* Have carbonic anhydrase which accelerates loading and off-loading of carbon (IV) oxide for faster carbon (IV) oxide transport. (any 3)

b) – Carbamin hemoglobin

* Carbonic acids
1. - Contains disease-causing micro-organisms which may cause outbreak of water borne diseases.
* Faecal materials are broken down by saprophytes leading to depletion of dissolved oxygen thus suffocation of aquatic organisms; breakdown of matter release nutrients which enrich the water resulting in eutrophication.
1. A – seeds (rej seed) (1mark)

B – Placenta (1mark)

b) P- Parietal;

 Q – Free central

1. (a)- Epigeal germination – is that type of germination where the cotyledons emerge above the ground; while hypogeal, the cotyledons remain underground;

b) Presence of germination inhibitors

 Acc abscisic acid immature embryo

* Absence of enzymes that facilitate germination.
1. - Bryophyta (1mark)
* Pteridophyta (1 mark)